

Application No.: 10/695,806

**AMENDMENTS TO THE CLAIMS**

1. (Currently amended) A system for evaluating engine cylinder contribution comprising:  
a displacement measurement device configured to detect engine block movement relative to a stationary structure; and  
a signal analyzer coupled to the displacement measurement device and configured to evaluate the engine block movement for determining engine cylinder contribution.
2. (Original) The system of claim 1, wherein the displacement measurement device comprises a potentiometer having a shaft with a first end and a second end, wherein the first end is attached to the engine block and the second end is attached to the stationary structure.
3. (Original) The system of claim 1, wherein the engine block is mounted to the stationary structure.
4. (Original) The system of claim 1, wherein the displacement measurement device comprises a piezo cable having a first end and a second end, wherein the first end is attached to the engine block and the second end is coupled to an input port of the signal analyzer.
5. (Original) The system of claim 1, wherein the displacement measurement device comprises a cable, wherein the cable has a resistance that is proportional to strain.

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6. (Original) The system of claim 1, wherein the displacement measurement device comprises a laser device.

7. (Original) The system of claim 1, wherein the displacement measurement device comprises a machine vision device.

8. Canceled.

9. (Original) The system of claim 1, further comprising:  
a signal cable configured to couple the displacement measurement device and the signal analyzer, the signal cable for providing a displacement signal to the signal analyzer.

10. (Original) The system of claim 9, wherein the signal analyzer further comprises:  
an input port configured to receive the displacement signal; and  
a processor coupled to the input port and configured to examine a voltage change on the displacement signal.

11. (Original) The system of claim 1, wherein the signal analyzer further comprises:  
a connection network configured to send and to receive data;  
a communications interface coupled to the connection network and configured to interface the signal analyzer to the displacement measuring device;  
a processor coupled to the connection network and configured to receive a displacement signal corresponding to the engine block movement; and  
a memory coupled to the connection network and configured to store the displacement signal.

12. (Original) The system of claim 11, further comprising:  
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a display screen coupled to the connection network and configured to display the displacement signal.

13. (Original) The system of claim 11, wherein the processor is further configured to compute cylinder contribution from the displacement signal.

14. (Original) The system of claim 1, further comprising:  
a cylinder clip coupled to a first ignition wire and configured to provide a trigger signal for the signal analyzer.

15. (Original) The system of claim 14, wherein the first ignition wire corresponds to a first fired cylinder in a firing order for the engine.

16. (Original) The system of claim 1, further comprising:  
a distributor clip coupled to an ignition coil and configured to sample the ignition coil voltage.

17. (Original) A method for measuring cylinder contribution for an engine having a firing order, the method comprising the steps of:

implementing a displacement measuring device for detecting engine block movement relative to a stationary structure;  
correlating the engine block movement to the firing order; and  
evaluating, for at least one engine cylinder, the engine block movement.

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18. (Original) The method of claim 17, further comprising:  
attaching a first end of the displacement measuring device to the engine block.

19. (Original) The method of claim 18, further comprising:  
attaching a second end of the displacement measuring device to the stationary structure.

20. (Original) The method of claim 18, further comprising:  
attaching a second end of the displacement measuring device to a signal analyzer.

21. (Original) The method of claim 17, wherein the engine block is mounted to the  
stationary structure.

22. (Original) The method of claim 17, further comprising:  
displaying at least one of the cylinder contribution and the engine block movement for at  
least one engine cylinder.

23. (Original) The method of claim 17, wherein the correlating step further comprises:  
obtaining a trigger signal from a first cylinder; and  
relating the trigger signal to the firing order of the engine.

24. (Original) The method of claim 23, wherein the relating step further comprises:  
adjusting the relationship between the observed engine block movement and the trigger  
signal according to an engine parameter.

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25. (Original) The method of claim 17, wherein the evaluating step further comprises:  
determining a cylinder contribution from the engine block movement.

26. (Original) The method of claim 25, wherein the determining step includes  
computing a derivative of the engine block movement.

27. (Original) A system for measuring cylinder contribution for an engine, the system  
comprising:

means for monitoring engine block movement relative to a fixed position;  
means for correlating the engine block movement to cylinder firing order; and  
means responsive to the monitoring and the correlating means for evaluating, for at least  
one engine cylinder, engine block movement.

28. (Original) The system of claim 27, further comprising:

means responsive to the correlating means for determining cylinder contribution.